

PATENT

Docket No. 10054-2

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: )  
C. D. Chang et al )  
Serial No. 09/436,520 ) Examiner: Christina Ildebrando  
Filed: November 9, 1999 ) Group Art Unit: 1754  
For: HYDROALKYLATION OF )  
AROMATIC HYDROCARBONS )

## DECLARATION UNDER 37 C.F.R. 1.132

Commissioner of Patents and Trademarks  
Washington, DC 20231

Sir:

I, the undersigned, Dr. JANE C. CHENG, a citizen of United States, whose address is 1303 Pinhorn Drive, Bridgewater, NJ 08807, do solemnly declare, as follows:

1. I have a Ph. D. in Organic Chemistry (Lehigh University, 1986), and I am employed by Exxon Mobil Research and Engineering Company, and at present hold the position of Advanced Research Associate at Corporate Strategic Research in Annandale, New Jersey.

2. I have been employed by Exxon Mobil Research and Engineering Company and its predecessors as a researcher in the field of aromatics alkylation using molecular sieves.

3. I am one of the inventors of the above-identified application.

4. I directed the testing for examples 1 through 13 of the above-identified application.

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5. It is my understanding that the Examiner has rejected claims 7 to 11 under 35 U.S.C. § 102(b) as being anticipated by Del Rossi et al., U.S. Patent No. 5,108,969. In particular, I understand that the Examiner relies upon Del Rossi et al., column 8, lines 37 to 46 and claim 1, as disclosing a catalyst composition useful in hydrocarbon conversion processes, reciting and claiming "an MCM-22 zeolite having a Group VIII metal and tin thereon."

6. I have been asked to comment on the invention disclosed in Del Rossi et al. and, in particular, whether this disclosure would have provided motivation to me, as a skilled researcher in the area of zeolite catalysis, to combine MCM-22 with palladium, ruthenium, nickel, or cobalt or to further combine the foregoing with a second metal, different from the first, selected from zinc, tin, nickel, or cobalt.

7. I note that the Del Rossi patent is directed to a "Low Acidity Catalyst for Conversion of Paraffins to Olefins and/or Aromatics," and specifically discloses a "low acidity Group VIII metal-containing zeolite MCM-22 catalyst, said zeolite exhibiting an Alpha value of not greater than about 150" in the abstract. The limitation on the Alpha value is repeated in Claim 1. The Del Rossi patent discloses a composition of matter using an MCM-22 catalyst which has been treated to reduce the Alpha value. Example 1 relates the preparation of MCM-22 and Example 2 discloses that the MCM-22 had an as-synthesized Alpha value of 224. Example 6 discloses Alpha values of 227, 180, and 187, respectively for additional preparations of MCM-22 material, and Example 9 reports an Alpha value of 173. Example 10 reports severely steaming the MCM-22 catalyst to achieve an Alpha value of 22, and the remaining examples relate to preparations using methods specifically designed to result in very low Alpha values.

8. The above-identified application neither disclosed nor based its examples on MCM-22 prepared or treated in such a way as to reduce the Alpha value below a given level. Since higher Alpha values are generally associated with MCM-22 and with the reactions for which it is useful, it would have been counter-intuitive for me to modify the

Del Rossi patent and the combinations disclosed therein by removing a specific restriction on the Alpha value.

9. The Alpha value of the MCM-22 used in the tests which were conducted under my direction and control and reported as Examples 1 through 11 was 280. No treatments to reduce the Alpha value were applied prior to the testing reported in Tables 1 and 2 of the above-identified application. The Alpha value of as-synthesized MCM-22 is in my experience typically greater than 150.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-captioned application or any patent issuing therefrom.

  
Dr. Jane C. Cheng

2/10/2003

Date